

NEW AND INTERESTING SPECIES IN THE "ISAAC LEA COLLECTION  
OF EOCENE MOLLUSCA."

BY CHAS. W. JOHNSON.

Through the kindness of Rev. L. T. Chamberlain, D.D., Curator of the "Isaac Lea Collection of Eocene Mollusca" in the Academy of Natural Sciences, I have been permitted to describe the following new species, which have been collected by Mr. Thomas A. Morgan, Mr. Frank Burns and the writer, in Alabama, Mississippi, Louisiana, and Texas, during explorations made under the direction and at the expense of Dr. Chamberlain.

*Volvaria reticulata* n. sp. Plate I, fig. 1.

Shell cylindrical, spire prominent, whorls five, the three apical whorls smooth, the body and adjoining whorl reticulated by numerous, raised, revolving and longitudinal lines, the revolving lines equidistant, while the longitudinal ones, which represent lines of growth, are finer and irregular; columella with two moderate folds. Length  $7\frac{1}{2}$  mm., greatest diameter 3 mm.

One specimen collected by the writer, from the Lower Claiborne at Moseley's Ferry, Brazos river, Burleson Co., Texas.

*Mitra grantensis* n. sp. Plate I, fig. 2.

Shell fusiform, specimen showing eight whorls (apex wanting), the first whorl below the apex smooth, the two following whorls show only the numerous longitudinal ribs, while the remaining whorls have equally prominent revolving ridges, which are somewhat larger on the anterior portion of the body whorl, while the third and fourth ridge below the suture are slightly smaller, the interstices formed by the two series of ridges consists of deep square pits, interior of the outer lip with numerous small ridges, columella with four folds, the anterior one very small. Length 14 mm., greatest diam. 5 mm.

One specimen collected by the writer from the Jacksonian Eocene at Montgomery, Grant Parish, La.

*Fusus apicalis* n. sp. Plate I, fig. 3.

Shell with ten convex whorls, apical whorl smooth, and the three

subapical whorls with numerous fine longitudinal raised lines, but no revolving sculpture, the other six whorls with six large longitudinal ribs, these are crossed by seven revolving ridges on the spiral whorl and about 22 on the body whorl; the second and third ridges below the suture somewhat smaller than the others; between the longitudinal ribs and on the narrow anterior portion of the body whorl the revolving ridges become nodulose. Length 31 mm., greatest diam. 10 mm.

Three specimens collected by the writer from the Lower Claiborne at "Alabama Bluff," Trinity river, Houston Co., Texas.

This locality, which is fifteen miles southwest of Crockett, is better known as Alabama Crossing.

**Fusus houstonensis** n. sp. Plate I, fig. 4.

Shell showing eight convex whorls, which are somewhat angular toward the apex (apical whorl wanting), whorls with eight prominent longitudinal ribs, and eight revolving ridges on the spiral whorls, the body whorl has about 30 revolving ridges, which become smaller on the anterior portion, the two peripheral ridges are more prominent, between and above which are small intermediate raised lines, these are obsolete or wanting between the other ridges. Length of the type specimen 44 mm., greatest diam. 14 mm.

Collected by the writer from the Lower Claiborne at "Alabama Bluff," Trinity river, Houston Co., Texas.

**Fusus ludovicianus** n. sp. Plate I, fig. 5.

Shell with eleven very convex whorls, the two apical whorls smooth, the following whorl with numerous oblique longitudinal ridges, which soon assume the general sculpture of the shell, spiral whorls with six revolving ridges, the two lower ones the most prominent, on the body whorl are 23 revolving ridges, the six large longitudinal ribs on each whorl are interrupted by a broad deep sutural area. Length of the type 29 mm., greatest diam. 9 mm.

One specimen collected by the writer from the Lower Claiborne at St. Maurice, Winn Parish, La.

**Fusus perobliquus** n. sp.

Whorls very oblique and angular (apical and body whorls wanting) with seven longitudinal ribs on each whorl and nine revolving ridges, one on the angle of the periphery, five above and three

below, the one at the suture very small and becoming obsolete on the upper whorls, the second one below the suture about one-half the size of the others, between the ridges the lens shows very fine revolving and longitudinal lines. Length of specimen 25 mm., diam. 9 mm.

One specimen collected by the writer from the Lower Claiborne at Moseley's Ferry, Brazos river, Burleson Co., Texas.

**Latirus obtusus** n. sp. Plate I, fig. 7.

Shell fusiform, with  $6\frac{1}{2}$  whorls including the nucleus, embryonic whorl large, smooth and obtuse, the following whorl commences with numerous longitudinal ribs, but soon assumes the general sculpture of the shell, which consists of six large rounded ribs on each whorl, which are crossed on the spiral whorls by eight revolving ridges, on the body whorl the revolving ridges exceed 30 in number, on the anterior portion they alternate and become very small, under the lens there is also visible, especially between the larger ribs, small longitudinal raised lines, representing probably lines of growth; columella shows but one small fold. Length 16 mm., greatest diam. 4 mm.

Two specimens collected by the writer, from the Lower Claiborne, at Hurricane Bayou, Houston Co., Texas.

**Latirus suturalis** n. sp. Plate I, fig. 6.

Shell fusiform, whorls seven, the three apical whorls smooth, the lower one with a few smooth longitudinal ribs, followed by the general sculpturing of the shell which consists of eight longitudinal ribs, which are crossed by prominent revolving ridges, three on the spiral whorls and eight on the body whorl, small revolving raised lines alternate with the ridges, junction of the revolving ridges and longitudinal ribs subnodose, longitudinal ribs interrupted above the suture, forming a deep sutural area, interior of the outer lip with five teeth-like ridges, columella with three prominent plaits. Length 8 mm., greatest diam. 4 mm.

Three specimens from the material collected by Thomas A. Morgan at Jackson, Miss.

**Latirus harrisii** n. sp. Plate I, fig. 8.

*Latirus singleyi* var. Harr.s. Proc. Acad. Nat. Sci., 1895, p. 71, pl. 6, fig. 13a.

A study of an almost perfect specimen of this species from

Berryman's Place, three miles northeast of Alto, Cherokee Co., Texas, and a good series of *L. singleyi* Harris, from Bald Mound, nine miles southeast of Jewett, Texas, proves that the form referred to as a variety of *L. singleyi* is a distinct species. It is smaller and more slender, the specimen in hand is 20 mm. in length, with a max. diam. of 6 mm., while *L. singleyi* is 37 mm. in length with a max. diam. of 12 mm., both species have about the same number of whorls (9 to 10), the revolving ridges are somewhat rugose below the suture, and the small alternating raised lines more prominent than in *L. singleyi*.

***Latirus sexcostatus*** n. sp. Plate I, fig. 9.

Shell fusiform, spire somewhat longer than the aperture and anterior canal, whorls nine, the three apical whorls smooth, the other with six longitudinal ribs, which are crossed on the spiral whorls by two prominent revolving ridges, on the body whorl the number is about ten, the interstices have numerous fine revolving raised lines and fine longitudinal lines of growth, interior of the outer lip with six short ridges and the columella with three small plaits. Length of type 14 mm., greatest diam. 6 mm., a larger but imperfect specimen has a diam. of 8 mm. and a probable length of 18 or 19 mm.

The type with eight additional specimens was collected by the writer from the Lower Claiborne at "Alabama Bluff," Trinity river, Houston Co., Texas. Specimens were also collected at Hurricane Bayou, Houston Co., Texas.

***Metula brazosensis*** n. sp. Plate II, fig. 1.

Shell subfusiform, whorls six, apical whorl smooth, the three prominent varices are continuous from the body whorl to the smooth apical whorl, between the varices are numerous small longitudinal ribs that become obsolete toward the base of the body whorl, these are crossed by numerous fine revolving raised lines, inner margin of the outer lip but slightly crenulated. Length 8 mm., greatest diam.  $3\frac{1}{2}$  mm.

Two specimens collected by the writer from the Lower Claiborne at Black Shoals, Brazos river, Burleson Co., Texas.

The localities, "Brazos river, about one mile below the Milam-Burleson county line," and "Collier's Ferry, Burleson Co.," given by Prof. Harris (Proc. Acad. Nat. Sci., 1895, pp. 73, 78, 79) are the same as Black Shoals.

**Metula gracilis** n. sp. Plate II, fig. 3.

Shell slender, fusiform, whorls eight, convex, the three apical whorls smooth, the others cancellated by about 29 revolving ridges on the body whorl, 10 on the spiral whorls and about 38 longitudinal ribs, forming at their junctions small nodules, body whorl with a prominent varix, aperture narrow, contracted at the anterior into a moderate canal, lip thickened, interior with 14 teeth-like ridges. Length 14 mm., greatest diam. 6 mm.

One specimen collected by the writer from the Lower Claiborne, at Alabama Bluff, Trinity river, Houston Co., Texas.

**Metula subgracilis** n. sp. Plate II, fig. 2.

Shell similar to the preceding, but with  $6\frac{1}{2}$  whorls, only  $1\frac{1}{2}$  of the apical whorls being smooth, slightly convex and showing a slight angle below the sutures, spiral whorls showing 8 and the body whorl about 24 revolving ridges, the first two below the suture more prominent than the others, longitudinal ribs of uniform size and about 40 in number, anterior canal much shorter, lip thickened, interior with 16 teeth-like ridges. Length 11 mm., greatest diam. 5 mm.

From the material collected by Mr. Thomas A. Morgan at Jackson, Miss. Two specimens.

**Metula johnsoni** (Vaughan).

*Phos johnsoni* Vaughan. Bull. 142. U. S. Geol. Sur., 36, pl. 3, fig. 3, 1896.

One specimen of this species was also found by the writer at Montgomery, Grant Parish, La. The specimen measures 20 mm., a little smaller than the type, the specimen, though not entirely perfect, indicates the presence of smooth apical whorls.

**Phos hilli** Harris, var. **magnocostatus** n. var. Plate I, fig. 10.

Shell elongate, spire acute, whorls eight, the three apical whorls smooth, on the adjoining whorl the oblique longitudinal ribs are small, gradually becoming larger. On the remaining four whorls the longitudinal ribs are very large, six to each whorl; the entire shell is covered with fine, somewhat alternating, revolving raised lines, a ridge runs obliquely from the end of the anterior canal to the middle of the peristome. Length 15 mm., greatest diam. 7 mm.

One specimen (figured) collected by the writer from the Jack-

sonian Eocene at Montgomery, Grant Parish, La., and numerous specimens from Jackson, Miss.

The types of this and the following variety seem very distinct from *P. hilli*, but among the large series before me are specimens that practically run the three together, *P. hilli* occupying an intermediate position. The type of *Phos hilli* is from the Jacksonian Eocene at Vince Bluff, Saline river, Cleveland Co., Ark. The typical form is also common at Jackson, Miss.

*Phos hilli* Harris var. *jacksonensis* n. var. Plate I, fig. 11.

The type of this variety may be described as follows: Shell with 8 whorls, apex smooth, the following whorl with only oblique ribs that soon assume the general sculpture of the shell, which consists of about 14 longitudinal ribs (on the body and first spiral whorl a number of these are united, forming, wide ribs or varices), these are crossed by prominent revolving ridges (5 on the spirals and about 18 on the body whorl) that form conspicuous nodules, there are also fine alternating revolving raised lines; above the basal fold of the columella a smaller one is present. Length 12 mm., greatest diam. 5 mm.

Numerous specimens from Jackson, Miss.

*Columbella punctostriata* n. sp. Plate II, fig. 4.

Shell subfusiform, spire prominent (apical whorls wanting), whorls convex, with several varices, reticulated by seven revolving ridges and numerous fine longitudinal ribs; these become obsolete or wanting on the body whorl. Anterior half of the body whorl with numerous revolving, punctated striae; aperture narrow, contracted, outer lip thick, sinuous, inner margin crenulated with 18 teeth-like ridges, inner lip smooth except at the anterior and posterior ends, where it is slightly rugose. Length 10 mm. (with apical whorls probably 12), greatest diam. 5 mm.

One specimen collected by the writer from the Lower Claiborne at Berryman's Place, three miles northeast of Alto, Cherokee Co., Texas.

*Typhis dentatus* n. sp. Plate I, fig. 13.

Shell with seven whorls, including the two smooth apical whorls, each whorl with four varices or ribs, those of the body whorl serrated with six, partly open, teeth-like projections, the one at the shoulder large and irregular, the varices in all cases extend more

than half-way up the spiral whorls, the large tubular spine at the shoulder midway between the varices extends outward and slightly forward, aperture ovate. Length 16 mm., greatest diam. 10 mm.

One adult and three young specimens, from the material collected by Thomas A. Morgan, at Jackson, Miss.

**Morio planotecta** (Meyer and Aldrich). Plate I, fig. 12.

*Cassidaria planotecta* Meyer and Aldr. Jour. Cin. Soc. Nat. Hist., ix, 43, pl. 2, fig. 14, 1886.

A large and handsome specimen of this species was collected by Mr. Thomas A. Morgan at Jackson, Miss. The beautiful drawing by Dr. J. C. McConnell will show all the important adult characters not given by Messrs. Meyer and Aldrich, who described the species from a young specimen, from Newton, Newton Co., Miss. Length of specimen figured 64 mm., greatest diam. 51 mm.

**Cassis** (*Phalium*) **taitii** (Conrad). Plate II, fig. 5.

*Cassis Taitii* Conr. Jour. Acad. Nat. Sci., vii, 145, 1834.

*Semicassis Taitii* Conr. Amer. Jour. Conch., i, 26, 1865.

A fragment consisting of the outer lip and portion of the body whorl, 53 mm. in length, was found by the writer, at Jackson, Miss., in the fall of 1894. Since then the specimen figured, which measures 35 mm. in length, was found by Mr. Thomas A. Morgan, at the same locality. The type which is in the Academy of Natural Sciences is from Claiborne, Ala. In the Jackson specimen the nodulose character of the revolving ridges is only present in the outer half of the body whorl, and obsolete or wanting near the columella.

**Cypræa jacksonensis** n. sp.

This is the largest species of *Cypræa* from the Eocene of North America. It is represented only by parts of perhaps three individuals (five specimens). The part of the outer lip measures 68 mm. A perfect specimen would probably exceed 90 mm. A specimen representing the dorsal surface has a diameter of 55 mm. Shell smooth and polished, lip thick, reflected, teeth large and occasionally bifurcate.

Collected by Mr. Thomas A. Morgan and the writer at Jackson, Miss.

**Cypræa ludoviciana** n. sp. Plate II, fig. 6.

Shell ovate, somewhat flattened, slightly prolonged at the extremities, smooth with a prominent broad medial dorsal groove.

Aperture narrow, having on each side 21 teeth, toward the ends these extend entirely across the base. Represented by four specimens, three of which measure as follows:

Largest, length 17 mm., greatest diam. 12 mm.

Specimen figured, length 15 mm., greatest diam. 10 mm.

Smallest, length 13 mm., greatest diam. 9 mm.

Collected by the writer from the Jacksonian Eocene at Montgomery, Grant Parish, La.

*Cypræa vaughani* n. sp. Plate II, fig. 7.

Shell small, ovate, globose, smooth, ends slightly prolonged, base rounded, aperture narrowed from the middle toward the posterior, outer lip with 19 and the inner lip with 16 teeth, the latter end abruptly and do not extend within the aperture, as in *Cypræa dalli*, to which it is nearest related, it is also at once separated from the latter by its smaller size.

Length 9 mm., greatest diam. 6 mm.

From the Lower Claiborne at Hammett's Branch, near Mt. Lebanon, La. One specimen.

This species is dedicated to Mr. T. Wayland Vaughan of the U. S. Geological Survey, through whose kindness in giving such explicit information of the Eocene localities of Louisiana I was able to collect this and many other interesting forms.

*Cypræa attenuata* n. sp. Plate II, fig. 8.

Shell elongate, anterior and posterior ends greatly attenuated and curved upward, smooth, with the exception of a few raised, revolving lines at each end, which are almost hidden by the heavy marginal callus, base smooth. Outer lip with 24 and the inner lip with 25 teeth, the central ones of the latter extending for some distance within the aperture. Length 20 mm., greatest diam. 8 mm.

One specimen collected by Mr. Frank Burns from the Lower Claiborne, at Lisbon Bluff, Clarke Co., Ala.

*Cypræa* (*Cyprædia*) *subcancellata* n. sp. Plate II, fig. 9.

Shell ovate, dorsal surface with 24 prominent revolving ridges, alternated by a smaller one; in the two middle interstices and all the interstices on the base of the shell, the smaller ridges are wanting; the entire shell has also small longitudinal raised lines, that are entirely interrupted by the prominent revolving ridges,



lips thickened, having about 40 ridges, owing to nearly all of the revolving ridges becoming a uniform size. Length 16 mm., greatest diam. 10 mm.

One specimen collected by the writer from the Lower Claiborne at Smithville, Bastrop Co., Texas.

**Ovula** (*Simnia*) *texana* n. sp.

Shell narrow, attenuate (anterior part of the shell wanting), resembling in form the recent *O. acicularis* Lam. of the West Indies; dorsal surface of the attenuated portion of the posterior, with fine revolving lines, the remainder of the shell smooth; outer lip thickened, showing a few crenulations toward the anterior, inner lip smooth with a raised callus at the posterior, on which are three or four transverse grooves. Length 11 mm. (its original length was probably about 14 mm.), greatest diam. 4 mm.

One specimen collected by the writer from the Lower Claiborne at "Alabama Bluff," Trinity river, Houston Co., Texas.

**Ovula** (*Simnia*) *subtruncata* n. sp.

Shell elongate, subtruncate, resembling somewhat the recent *O. uniplicata* Sowerby, of Florida. Smooth with numerous fine revolving lines around the angular or subtruncated posterior, posterior canal extending beyond the truncated portion forming a deep excavation, lip thin, but in a more adult specimen would probably be much thicker. Length 15 mm., greatest diam.  $4\frac{1}{2}$  mm.

One specimen collected by the writer from the Lower Claiborne, at Hammetts Branch, near Mt. Lebanon, La.

**Rimella rugostoma** n. sp. Plate II, fig. 10.

Shell subfusiform, whorls eight, slightly convex, the two apical whorls smooth, the others beautifully reticulated as follow: The three spiral whorls below the smooth apical whorls, have seven equidistant, flat, revolving ridges, which are crossed by small interrupted longitudinal ribs, obsolete on the upper of the three whorls. The body whorl above the periphery and the first and second spiral whorls have revolving ridges that are divided by a small groove into five pairs, on the body whorl below the periphery are twenty single revolving ridges, which become gradually small toward the base, just above the suture one of the single revolving ridges is also exposed on the first and second spiral whorls; longitudinal ribs prominent, about twenty to each whorl, becoming nodulose where

they cross the revolving ridges. Aperture narrow, ovate, outer lip thick, and deeply notched, lobe acute, inner margin crenulated by about twenty short ridges; inner lip thin, expanded, bearing a rugose callous ridge which curves gradually downward toward the posterior end of the aperture, above which, at the posterior commissure is a small rugose triangle, the posterior canal extending to the base of the fourth spiral whorl. Length 20 mm., greatest diam. 9 mm.

One specimen from the material collected by Thomas A. Morgan, at Jackson, Miss.

**Potamides** (*Telescopium*) *chamberlaini* n. sp. Plate II, fig. 11.

Shell acute (apex wanting), whorls flat, slightly concaved ornamented by revolving rows of nodules, one above and a double or geminate row below the suture, on the body whorl the nodules become obsolete on the periphery, on the spiral whorls between the nodules are from two to four revolving ridges and on the body whorl six, just below the periphery is a prominent low ridge with two small raised lines between it and the periphery, the base of the shell is covered with numerous minute revolving lines; columellar fold at the base broad, rounded and carinated on the lower edge, a break on the second spiral whorl shows that the same is there narrow and sharply keeled. Length of the specimen figured 35 mm., greatest diam. 14 mm.

Two specimens collected by Mr. Frank Burns, from the Midway Eocene, at Matthew's Landing, Ala.

This beautiful shell is named in honor of Rev. L. T. Chamberlain, D.D., to whose untiring interest and generous aid the present status of the "Isaac Lea Collection of Eocene Mollusca" is due.

**Ampullina** *morgani* n. sp. Plate II, fig. 12.

Shell globose, spire prominent, whorls convex, somewhat flattened below the suture, smooth, with numerous, very close, fine lines of growth, and obsolete revolving raised lines on same portion of the shells, umbilicus of moderate width surrounded by a reflected polished callus, that extends to the anterior portion of the aperture, pillar-lip thin not reflected over the umbilicus. Length 31 mm., greatest diam. 27 mm.

Two specimens collected by Thomas A. Morgan, at Jackson, Miss.

This species is distinguished from *A. streptostoma* Heilp. by the

more prominent spire, flattened area below the suture, larger umbilicus and *non*-reflected pillar-lip.

**Adeorbis infraplicatus** n. sp. Plate II, figs. 13, 14.

Shell small, spire depressed, nucleus smooth, whorls three, with two prominent revolving ridges, one at the periphery and one midway between the periphery and the suture, both are very minutely crenulated, between the two ridges smooth or with very fine revolving lines, from the smooth nucleus radiate fine raised lines that increase in size on the body whorl, these are crossed by fine revolving lines, base of the shell with numerous fine revolving lines, umbilicus of moderate size, margin smooth, nearly half-way across the base from the margin of the umbilicus extend numerous radiating plications, crossed by very fine revolving lines. Alt.  $1\frac{1}{2}$  mm., greatest diam. 3 mm.

Four specimens from the material collected by Thomas A. Morgan, at Jackson, Miss.

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The Academy is indebted to the liberality of Dr. Chamberlain for the illustrations, which are drawn by Dr. J. C. McConnell of Washington.